CLAIMS

What is claimed is:

1. A method for identifying compatibility between two firmware images, comprising:

analyzing a control block of each of said firmware images, wherein each of said control blocks includes a firmware family code and a compatibility table of a firmware image associated with said control block;

determining if said firmware family codes of said firmware images are the same; and

evaluating said compatibility tables to determine if said firmware images are compatible in response to said determination that said firmware family codes of said firmware images are not the same, wherein each of said compatibility tables describes the relationship between an associated firmware image and other family codes.

2. The method as recited in Claim 1, further comprising reporting said firmware images are not compatible if said family codes of said firmware images are not the same and said evaluation of said compatibility tables concludes that said firmware images are not compatible.

3. The method as recited in Claim 1, wherein said compatibility table includes at least one table entry, wherein said table entry is associated with a different firmware image.

4. The method as recited in Claim 3, wherein said table entry includes a family code and a stepping level of said different firmware image.

1   5.   The method as recited in Claim 4, wherein said table entry further

2   includes a relationship code that identifies whether a firmware image associated with

3   said compatibility table can be utilized to replace a firmware belonging to a firmware

4   family identified in said compatibility table.

1   6.   The method as recited in Claim 5, wherein said relationship code

2   includes a family relationship code and a stepping level relationship code.

1   7.   The method as recited in Claim 6, wherein said family relationship code

2   identifies which firmware family code is compatible with said firmware image

3   associated with said compatibility table.

1   8.   The method as recited in Claim 6, wherein said stepping level

2   relationship code identifies which stepping levels can replace or be replaced with said

3   firmware image associated with said compatibility table.

1   9.   The method as recited in Claim 1, wherein each of said control block

2   further includes a stepping level of an associated firmware image.

1   10.   The method as recited in Claim 1, wherein each of said control blocks

2   is resident in an associated firmware image.

1   11.   The method as recited in Claim 1, wherein each of said control blocks

2   is not resident in an associated firmware image and accessed utilizing a software

3   application interface (API).

1   12.   A computer-readable medium having stored thereon a data structure

2   for a firmware family control block of a firmware image, said data structure

3   comprising:

4   a first field containing data representing a firmware family code of said

5   firmware image; and

6   a second field containing data representing a compatibility table entry.

1   13.   The computer-readable medium as recited in Claim 12, wherein said

2   data structure further includes a third field containing data representing a firmware

3   stepping level of said firmware image.

1   14.   The computer-readable medium as recited in Claim 12, wherein said

2   computer-readable medium is a non-volatile memory device.

1   15.   The computer-readable medium as recited in Claim 14, wherein said

2   non-volatile memory device is a programmable read only memory (PROM).

1   16.   The computer-readable medium as recited in Claim 14, wherein said

2   non-volatile memory device is a electrically erasable programmable read only memory

3   (EEPROM).

1   17.   The computer-readable medium as recited in Claim 12, wherein said

2   compatibility table entry includes a relationship code that describes a relationship

3   between said firmware image and other firmware images which may be compatible

4   with said firmware image.

18. The computer-readable medium as recited in Claim 12, wherein said compatibility table entry includes a family relationship code that identifies a firmware family code of at least one other firmware image which may be compatible with said firmware image.

19. The computer-readable medium as recited in Claim 12, wherein said compatibility table includes a stepping level relationship code that identifies which stepping levels can replace or be replaced by said firmware image.

20.   A computer-readable medium having stored thereon computer executable instructions for implementing a method for identifying compatibility between firmware images, said computer executable instructions when executed perform the steps of:

analyzing a control block of each of said firmware images, wherein each of said control blocks includes a firmware family code and a compatibility table of a firmware image associated with said control block;

determining if said firmware family codes of said firmware images are the same; and

evaluating said compatibility tables to determine if said firmware images are compatible in response to said determination that said firmware family codes of said firmware images are not the same, wherein each of said compatibility tables describes the relationship between an associated firmware image and other family codes.

21.   The computer-readable medium as recited in Claim 20, wherein said computer executable instructions further comprising reporting said firmware images are not compatible if said family codes of said firmware images are not the same and said evaluation of said compatibility tables concludes that said firmware images are not compatible.

22.   The computer-readable medium as recited in Claim 20, wherein said compatibility table includes at least one table entry, wherein said table entry is associated with a different firmware image.

23.   The computer-readable medium as recited in Claim 22, wherein said table entry includes a family code and a stepping level of said different firmware image.

1 24. The computer-readable medium as recited in Claim 23, wherein said
2 table entry further includes a relationship code that identifies whether a firmware
3 image associated with said compatibility table can be utilized to replace a firmware
4 belonging to a firmware family identified in said compatibility table.

1 25. The computer-readable medium as recited in Claim 24, wherein said
2 relationship code includes a family relationship code that identifies which firmware
3 family code is compatible with said firmware image associated with said compatibility
4 table.

26. The computer-readable medium as recited in Claim 24, wherein said
relationship code includes a stepping level relationship code that identifies which
stepping levels can replace or be replaced with said firmware image associated with
said compatibility table.

27. The computer-readable medium as recited in Claim 20, wherein each of
said control block further includes a stepping level of an associated firmware image.

1   28.   A data processing system, comprising:

2   a processor;

3   a non-volatile memory, coupled to said processor;

4   a firmware image resident in said non-volatile memory; and

5   a firmware family control block, wherein said firmware family control block is

6   associated with said firmware and includes:

7   a firmware family code of said firmware image; and

8   at least one compatibility table entry.

29.   The data processing system as recited in Claim 28, wherein said

firmware family control block further includes a firmware stepping level of said

firmware image.

30.   The data processing system as recited in Claim 28, wherein said non-

volatile memory is a programmable read only memory (PROM).

31.   The data processing system as recited in Claim 28, wherein said non-

volatile memory device is a electrically erasable programmable read only memory

(EEPROM).

1   32.   The data processing system as recited in Claim 28, wherein said

2   compatibility table entry includes a relationship code that describes a relationship

3   between said firmware image and other firmware images which may be compatible

4   with said firmware image.

33.   The data processing system as recited in Claim 28, wherein said compatibility table entry includes a family relationship code that identifies a firmware family code of at least one other firmware image which may be compatible with said firmware image.

34.   The data processing system as recited in Claim 28, wherein said compatibility table includes a stepping level relationship code that identifies which stepping levels can replace or be replaced by said firmware image.

35.   A method for upgrading an installed firmware with a candidate firmware, comprising:

determining if each of said installed and candidate firmwares has a control block, wherein each of said control blocks includes a firmware family code, firmware stepping level and compatibility table of an associated firmware;

acquiring firmware family codes and firmware stepping levels of said installed and candidate firmwares in response to said determination that both of said installed and candidate firmwares have a control block;

comparing said family codes and said stepping levels of said installed and candidate firmwares; and

determining if said installed and candidate firmwares are compatible utilizing said compatibility tables in response to said family codes and said stepping levels of said installed and candidate firmwares not matching.

36.   The method as recited in Claim 35, further comprising utilizing legacy methods for determining if said installed and candidate firmwares are compatible in response to said determination that said installed firmware does not have a control block.

37.   The method as recited in Claim 35, further comprising overwriting said installed firmware with said candidate firmware in response to said determination that said installed and candidate firmwares are compatible.

38.   The method as recited in Claim 35, further comprising reporting said installed firmware with said candidate firmware are incompatible in response to said determination that said installed and candidate firmwares are not compatible.

39. The method as recited in Claim 35, wherein said compatibility table includes at least one table entry, wherein said table entry is associated with a different firmware.

40. The method as recited in Claim 39, wherein said table entry includes a family code and a stepping level of said different firmware.

41. The method as recited in Claim 40, wherein said table entry further includes a relationship code that identifies whether a firmware associated with said compatibility table can be utilized to replace a firmware belonging to a firmware family identified in said compatibility table.

42. The method as recited in Claim 41, wherein said relationship code includes a family relationship code that identifies which firmware family code is compatible with said firmware associated with said compatibility table.

43. The method as recited in Claim 41, wherein said relationship code includes a stepping level relationship code that identifies which stepping levels can replace or be replaced with said firmware associated with said compatibility table.

44.   A computer-readable medium having stored thereon computer executable instructions for implementing a method for upgrading an installed firmware with a candidate firmware, said computer executable instructions when executed perform the steps of:

determining if each of said installed and candidate firmwares has a control block, wherein each of said control blocks includes a firmware family code, firmware stepping level and compatibility table of an associated firmware;

acquiring firmware family codes and firmware stepping levels of said installed and candidate firmwares in response to said determination that both of said installed and candidate firmwares have a control block;

comparing said family codes and said stepping levels of said installed and candidate firmwares; and

determining if said installed and candidate firmwares are compatible utilizing said compatibility tables in response to said family codes and said stepping levels of said installed and candidate firmwares not matching.

45.   The computer-readable medium as recited in Claim 44, wherein said computer executable instructions further comprising utilizing legacy methods for determining if said installed and candidate firmwares are compatible in response to said determination that said installed firmware does not have a control block.

46.   The computer-readable medium as recited in Claim 44, wherein said computer executable instructions further comprising overwriting said installed firmware with said candidate firmware in response to said determination that said installed and candidate firmwares are compatible.

1   47.   The computer-readable medium as recited in Claim 44, wherein said

2   computer executable instructions further comprising reporting said installed firmware

3   with said candidate firmware are incompatible in response to said determination that

4   said installed and candidate firmwares are not compatible.

1   48.   The computer-readable medium as recited in Claim 44, wherein said

2   compatibility table includes at least one table entry, wherein said table entry is

3   associated with a different firmware.

     49.   The computer-readable medium as recited in Claim 48, wherein said

     table entry includes a family code and a stepping level of said different firmware.

     50.   The computer-readable medium as recited in Claim 49, wherein said

     table entry further includes a relationship code that identifies whether a firmware

     associated with said compatibility table can be utilized to replace a firmware belonging

     to a firmware family identified in said compatibility table.

     51.   The computer-readable medium as recited in Claim 50, wherein said

2   relationship code includes a family relationship code that identifies which firmware

3   family code is compatible with said firmware associated with said compatibility table.

1   52.   The computer-readable medium as recited in Claim 50, wherein said

2   relationship code includes a stepping level relationship code that identifies which

3   stepping levels can replace or be replaced with said firmware associated with said

4   compatibility table.